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INDEX
TO THE
PROCEEDINGS
OF THE
Engineers' Society
OF
Western Pennsylvania

VOLUMES I. TO XX.
1880-1904

COMPILED BY
HARRISON W. CRAVER

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Index to Proceedings
of the
Engineers' Society of Western Pennsylvania

Volumes 1 to 20
1880—1904

Compiled by
Harrison W. Craver

Carnegie Library of Pittsburgh
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Preface

The material of this index was first compiled in card form for library use, but as there has been a demand for a printed index it has been thought advisable to publish it in book form.

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The index includes in one alphabet (1) an author index and (2) a subject index in which each article is listed under its main subject with cross-references from allied topics. An author entry is made for each person taking part in the discussion of a paper, with a reference to the page on which his first remarks appear. The titles are given as printed in the Proceedings; where it has been necessary to supply titles, they are enclosed in brackets.

mc
In arranging the entries under proper names, the forms Mc and M' have been treated as though spelled Mac. Papers by two or more authors are entered under each.

The laxness of the editing of the Proceedings at some periods and the difficulty of identifying some names make it exceedingly probable that there are a number of errors. Volume two, especially, was seemingly never published in complete shape and the pagination is inextricably confused. The copies in the Carnegie Library of Pittsburgh and the library of the Society have been collated and taken as the text for this index.

Especial aid has been given by Mr E. H. McClelland, of the Technology Department of the Carnegie Library, who has read all the proof.

HARRISON W. CRAVER

Technology Department
Carnegie Library of Pittsburgh

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Sand filtration of a public water supply. A résumé of reasons for filtration and an account of work done with an experimental filter plant at Craig street, Pittsburg, from September 22d, 1895, to September 24th, 1896... v.13, p.70-126

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Brief discussion of sources of waste in steam plants and an analysis of cost of power at the Allegheny City Electric Light Plant.

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Considers design, construction, operation and maintenance of electric overhead cranes.

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Gives tables showing highest stages of water for long periods in the Ohio and some German rivers. From study of these data argues that floods are not due to loss of forests.

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- Comparison of costs of puddling and heating in common and regenera-
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- Illustrates and describes the Walker furnace as applied to boilers,
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Gas engine in practical use.....v.16, p.99-116

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 Illustrated review of inventions from 1791 to the invention of the Otto engine of 1876.
- Stewart, Reid T.
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 Describes theory and practical working of the gas-engine. Shows that the greater part of the heat is lost and suggests methods of utilization.
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- Some applications of natural gas in chemical work....v.9, p.235-236
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- Some properties of acetylene.....v.12, p.19-27
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- Some uses of hydrogen peroxide in analytical chemistry.....v.10, p.227-237
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Consists in separation of pure ammonium phospho-molybdate, solution in sodium hydroxid and titration of excess with nitric acid.

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Utilizes color produced in alkaline solutions of ammonium phospho-molybdate by hydrogen sulphid.

McKenna, Alexander G.

Some sources of error in phosphorus determinations.....v.9, p.233-235

Claims that potassium permanganate is ineffective as an oxidizing agent with chilled iron samples, and that alkaline solutions of the phosphorus salts should be titrated at once.

Manby, Charles E.

Effect of annealing shot or chilled iron in the determination of phosphorus by the permanganate alkali method.....v.18, p.132-136

Gives method and table of results showing effect.

Piers.

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Pig-iron.*See also* **Cast-iron. Iron.**Beker, Rudolph G. *comp.*

[World's production of pig-iron.].....v.18, p.555

Graphical statement of imports and exports of various countries, productions of the United States by states in 1901, furnace capacity of the leading American producers, the annual production of the United States, 1820-1901, and that of Germany, Great Britain, Pennsylvania and Ohio 1880-1901.

Piles.*See* **Mortars.****Pin plates.**

Johnson, Thomas Humrickhouse.

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Discussion by M. J. Becker, J. M. Deforth, E. Swensson, G. Kaufman and H. J. Lewis.

Describes tests of full size top chord sections. Compares computed and actual ultimate strength and makes deductions as to the proper design of pin plates.

Pipes.*See also* **Gas-mains.**

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Manufacture of welded pipe.....v.19, p.796-834

Discussion by S. Diescher, S. B. Ely, J. M. Camp, G. E. Flanagan, S. M. Kintner, W. Whited, — Mullen and others.

Describes its evolution and the commercial processes of to-day (1903). Numerous drawings of machinery and plants.

Bray, Thomas J.

Welded steel tubes.....v.4, p.6-12, 25-33

Discussion by A. E. Hunt, P. Barnes, H. A. Boyd, G. R. Stewart, T. P. Roberts, — McCaffrey, W. Metcalf, W. E. Koch and R. Miller.

Describes manufacture and properties, noting many practical points in making and working. Gives comparisons with welded iron tubes.

Harlow, James Hayward.

Specimen of cast iron pipe.....v.2, p.393-399

Discussion by A. E. Hunt, F. C. Phillips and J. L. Lowry.

Illustrated description of condition after eight years of use as a water-main which had been laid in rolling-mill cinder where covered twice daily by salt-water. Gives specifications to which the pipe was furnished.

Phillips, Francis Clifford.

Manufacture of glass pipes of large calibre by the Ap-pert process.....v.10, p.99-104, 134

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Pittsburgh.

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Natural resources of Pittsburgh.....v.7, p.9-26

Brief description of city, natural resources, transportation facilities, manufactures, notes on important works, bridges, street railways and river improvements.

Kirtland, Alfred P.

Pittsburg, with its black diamonds.....v.15, p.203-221

Discussion by F. Z. Schellenberg, E. K. Morse, W. A. Bole, C. B. Albree, H. J. Lewis, J. M. Camp and W. G. Wilkins.

Discusses importance and value of Pittsburgh coal-field and its relation to the industries of the region. Describes the commercial position of Pittsburgh. Illustrated.

Plants.

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Summarizes results of various investigations. Gives results of author's experiments on the growth of plants in soils containing zinc, copper and lead carbonates and calcium arsenate, and on the absorption of these by the plants.

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Description of construction and equipment of building designed to furnish power to a group of office and store buildings. Numerous illustrations and drawings.

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Describes a device for removing greater part of carbon from smoke by trapping and distilling. Specially applicable to domestic chimneys. Illustrated.

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remedies. Describes the author's frogless switch.

Wilgus, Herbert Sedgwick.

Allegheny track elevation.....v.18, p.373-382

Describes curves, grades and bridges on the elevated tracks of the Pitts-
burgh, Fort Wayne and Chicago railway in Allegheny. Gives method
of construction and of mixing concrete, with detailed comparison of
cost of mixing by hand and by machine.

Railroads.

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C. B. Price, C. Davis, I. V. Hoag, jr., G. S. Davison and others.

Shows possible routes into Pittsburgh and gives suggestions as to methods
of increasing their capacity.

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Brief notes on early railroading in Pennsylvania.

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Annual production of cut and wire nails in the United States, 1885-1901.—Annual production of rails according to weight in the United States, 1897-1901.—Annual production and average price of rails in the United States, 1884-1901.—Annual production of plate and sheet steel in the United States, 1887-1901.—Annual production of rails in Great Britain, 1884-1901.—Annual production of wire rods in the United States, 1888-1901.—Annual production of structural steel in the United States, 1894-1901.—Annual importation and production of tinplate in the United States, 1884-1901.

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Standard rail sections and fish bar joints.....v.3, p.33-43

Discussion by M. J. Becker, A. Dempster, H. R. Bridges, W. Kent, C. L. Strobel, W. R. Brown and T. P. Roberts.

Illustrated description of series of proposed standards ranging from 50 lb. to 78 lb. per yard, in which special attention has been directed to the distribution of the metal.

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Gives results of numerous tests. Effect of temperature upon rail breakage is also discussed.

Rapid transit.

Kintner, Samuel Montgomery.

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Discusses advantages of this system and suggests applications in Pittsburgh.

Swensson, Emil.

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Considers relative advantages and disadvantages of elevated roads and subways, especially for Pittsburgh. Favors the former and suggests a route.

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Improvement in the zinc reductor for the determination of iron or phosphorus.....v.11, p.227-230

Consists in use of amalgamated zinc. Describes and illustrates the reductor used.

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Basic dephosphorizing process, what it is, and what may be expected from it.....v.1, p.176-190

Discussion by J. Park, *jr.*, C. Parkin and W. Metcalf.

Explains theory of process, methods of application in Bessemer and open-

hearth working and advantages gained by its use. Commercial nomenclature of iron and steel is a topic of the discussion.

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Reinforced concrete.

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Present (1904) methods of operation, systems of transmission and distribution and generating stations.

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See **Allegheny river. Ohio river.**

River lines.

Roberts, Thomas Paschall.

[Proposed resolutions concerning high and low water lines in Pittsburgh harbor.].....v.3, p.128-129

Gives resolutions in favor of their relocation, with arguments for their adoption.

River navigation.

See also **Bridges. Pittsburgh.**

Dravo, John F.

Artificial limitations of commerce on our rivers...v.18, p.366-372,
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Discussion by T. H. Johnson, R. Trimble, J. A. Atwood, E. F. Wendt, W. Whited, G. S. Davison, E. Swensson, W. L. Sibert and T. M. Rees. Considers damage done to traffic by low bridges, piers and encroachments on shore lines on the Allegheny, Monongahela and Ohio rivers.

Roberts, Thomas Paschall.

[River navigation at Pittsburgh.].....v.18, p.383-386
Discusses necessity of good facilities for freight traffic.

Rodgers, W. B.

Improved waterway necessary for commercial outlet.....v.19, p.61-65

Describes difficulty of navigation around Pittsburgh and pleads for increased facilities.

Sibert, William Luther.

Full use of the rivers at Pittsburg and the removal
of obstructions to such use.....v.18, p.345-360, 388-394

Discussion by W. Whited, G. S. Davison, E. Swensson and others.

Considers value and amount of Pittsburgh river traffic, present obstructions and methods for improvement of rivers. Plans are sketched for raising bridges over Allegheny river. Illustrated.

Snyder, Antes.

Pittsburgh—her waterways and her railways..v.19, p.14-60, 71-83

Discussion by T. P. Roberts, W. L. Sibert, J. K. Lyons, C. F. Scott, W. C. Herron, C. B. Albree, W. B. Rodgers and others.

Brief history of development of water and rail transportation in Pennsylvania and discussion of their relative values. Argues against raising of Pittsburgh bridges. Opposite views appear in discussion.

Rivers.

See also Floods. Water supply.

Davison, George Stewart.

Discharge observations of large streams.....v.8, p.87-114

Discussion by A. E. Hunt, W. G. Wilkins, J. W. Langley, T. P. Roberts, M. J. Becker, I. Winn, E. Swensson, G. Kaufman and W. L. Scaife.

Description of methods, especially those used by the Mississippi river commission in 1879-1880. Illustrated.

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- E. Swensson, H. W. Fisher, N. C. Wilson, F. Z. Schellenberg, F. Engström, K. F. Stahl and others.
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- Preston, E. Floyd.
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- Snyder, William E. and others.**
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Claims "that the principle of measuring work by the product of a force and a distance, is a law of *moving bodies*, which does not apply to static forces."

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Steam economy in rolling-mill engine practice.....v.7, p.110-128

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Considers steam economy of various types of engines and advises as to best steam pressure and design of auxiliary parts of engines. Criticizes wasteful practice of Pittsburgh region.

Bole, William Andrew.

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Reviews their evolution and advantages and present practice in design and construction, and discusses the merits of a few types. Illustrated.

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Brief discussion of sources of waste in steam plants and an analysis of cost of power at the Allegheny City Electric Light Plant.

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Considers causes of malleability, elasticity, hardness, flexibility, tenacity, ductility and strength. Discusses best composition and method of working to secure maximum value of any property.

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J. Reese, T. P. Roberts, T. Rodd, J. A. Brashear, W. L. Scaife and T. R. Phillips.

Traces development from beginning and gives information concerning the analyses, strength, working and use of steel for rails, beams, axles, etc.

Langley, John Williams.

European Bessemer practice in small converters...v.6, p.125-139

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Notes of personal visits to various works in France, Belgium and Sweden. Describes forms of converters and methods used.

Metcalf, William.

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Reese, Jacob.

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Explains theory of process, methods of application in Bessemer and open-hearth working and advantages gained by its use. Commercial nomenclature of iron and steel is a topic of the discussion.

Watson, Ralph H.

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 Proposes scheme for replacement of isolated power plants by electric power from large central plants. Comparative costs for Pittsburgh are given.

Public safety and the distribution of light and power by electricityv.6, p.60-88
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 Concise description of various systems of distribution, showing relative efficiency and economy and elements of danger of each.

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 Discusses advantages of this system and suggests applications in Pittsburgh.

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